Ateneo Innovation Center

COASTAL CITIES AT RISK IN THE PHILIPPINES
Investing in Climate and Disaster Resilience

EXTREME EVENTS - FRAGILE INFRASTRUCTURE ANTICIPATORY TECHNOLOGIES FOR RESILIENCE HUBS

Gregory Tangonan, Maria Joy Rocamora, and Paul Cabacungan

Ateneo Innovation Center

National Resilience Council

The New Normal - A Cascade of Extreme Events

Cascaded Disasters and Crises Reveal New Dimensions in the Geography of Risk and Vulnerability

philstar GLOBAL
Subscribe
4 State Trucks
Freightliner & more!
Photo shows a pedestrian crossing a flooded Taft Avenue in Manila following continuous rains yesterday.
Krizjohn Rosales, file

Monsoon floods cities; thousands evacuated

Does Your COVID Timeline Include These Disasters ?

New COVID Variant Spread in NCR

People navigate the knee-deep flood in Barangay San Agustin in Malabon City

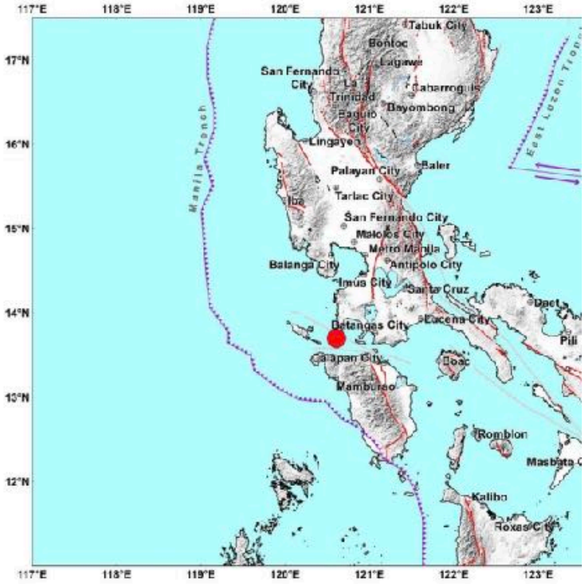
INQUIRER.NET

Magnitude 6.6 quake hits Batangas, felt in Metro Manila, nearby provinces

By: Julie Espinosa - @inquirerdotnet

INQUIRER.net / 05:22 AM July 24, 2021

July 24, 2021



Extreme Events Expose Fragility of Critical Infrastructure

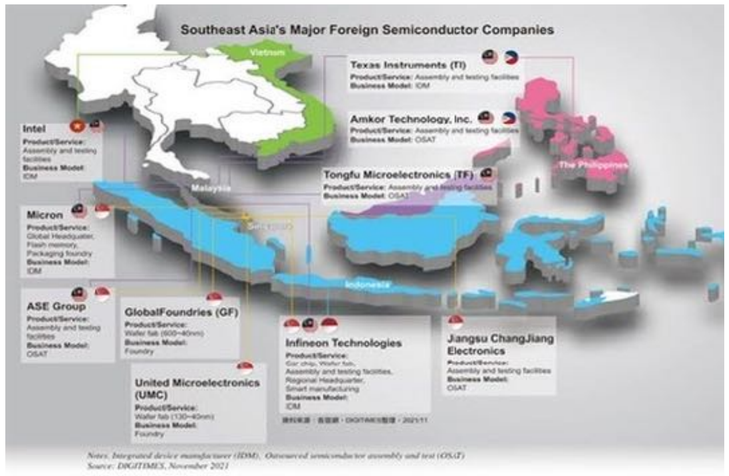
Water Shortage

Air Traffic Shutdown

Wild Fires

Earthquakes

Supply Chain Collapse



Floods

Extreme Events x Fragile Infrastructure —> Triggered Cascaded Disasters

Extreme Events Expose Fragility of Critical Infrastructure

Water Shortage

Wild Fires

Supply Chain Collapse

EVERY NEW SAND CAUSES AN AVALANCHE

Self-Organized Criticality - Fragility

Air Traffic Shutdown

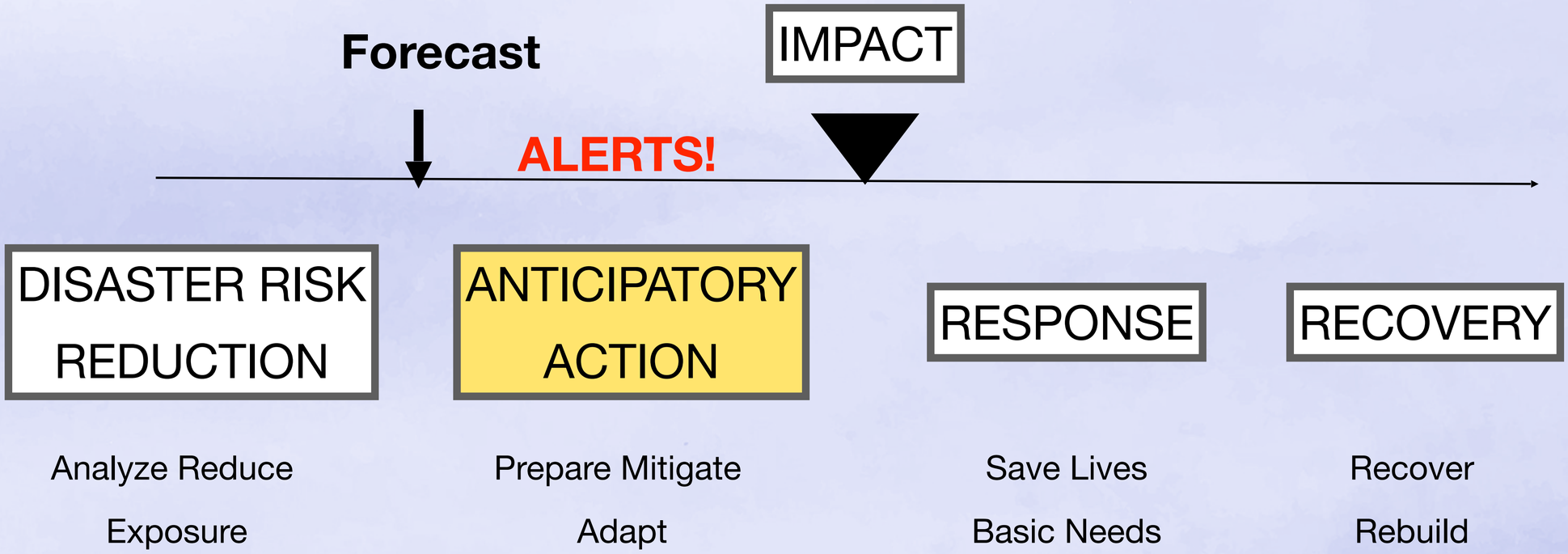
Earthquakes

Floods

Extreme Events x Fragile Infrastructure —> Triggered Cascaded Disasters

Anticipatory Action Enabled By Key Anticipatory Technologies

We Really Can't Forecast Complex Cascaded Disasters



ANTICIPATORY TECHNOLOGIES ALLOW US TO BUILD RESILIENCE AGAINST THE NEXT CASCADED DISASTER

WE MASTERED ANTICIPATORY TECHNOLOGIES DURING THE PANDEMIC !!

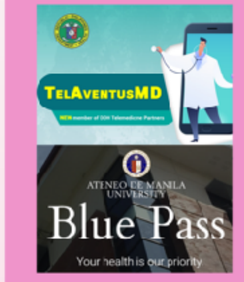
Presentation By:
Patricia Joy Abarquez
Kianna Louise Navarrosa
Mikhaela Francesca Radaza

COVID PANDEMIC

INNOVATION AND TECHNOLOGY 2024

THE COMMON EXPERIENCE

Healthcare



Telemedicine

Locally-made and procured PPEs

Speedy development of covid vaccines and covid home test kits

Education

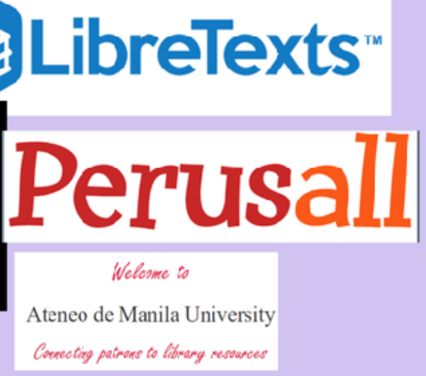
Ateneo Blue Cloud

LibreTexts™

Google Workspace

zoom

Perusall



Mobility

J&T EXPRESS

Grab

LALAMOVE

LBC

GOGO XPRESS

W EXPRESS

Social life

skribbl.io

+ Watch parties and hangouts via GMeet!

Anticipatory Action Policy Initiatives

Flood Ready Infrastructure

Hamburg, Germany

SPONGE CITIES -
Feature permeable pavements, green roofs, wetlands, and rain gardens. The elements absorb and reuse rainwater, reduce urban flooding, and enhance urban resilience.

Mega-Financing for RE

Global Finance

GREEN BOND FUNDS -
Financing major renewable energy projects, such as wind farms and solar arrays. New projects are in developing countries with bounty of RE potential and lack the technology.

Local Survivable Centers

DRR Initiative Worldwide

RESILIENCE HUBS - √
A sustainable long-term evacuation center during disasters and as a vibrant community center during normal times. Dual purpose lifelines for communities facing extreme events.

FEWS+NEXUS

‘Nexus thinking’ promotes the inseparable links between the use of resources to provide basic and universal rights to food, water and energy security

FOOD

ENERGY

WATER

INFOTECH, MEDICAL, MOBILITY, etc.

NAGA CITY DEPLOYMENT WILL BE A PROTOTYPE SUSTAINABLE AND SAFE ZONE FOR EVACUEES

TEKNOLOHIYA PARA SA KATATAGAN NG KOMUNIDAD SA PANICUASON, NAGA CITY

Ilaw at Bentilador na Solar

Malinis na Tubig

Pangsala sa Tubig ng Poso Negro

Gulayang walang Lupa sa Bubungan

Pagpapadala ng Larawan sa Radio

Ulap pang Edukasyon

Kalan at Pugon na Gawa sa Laryo

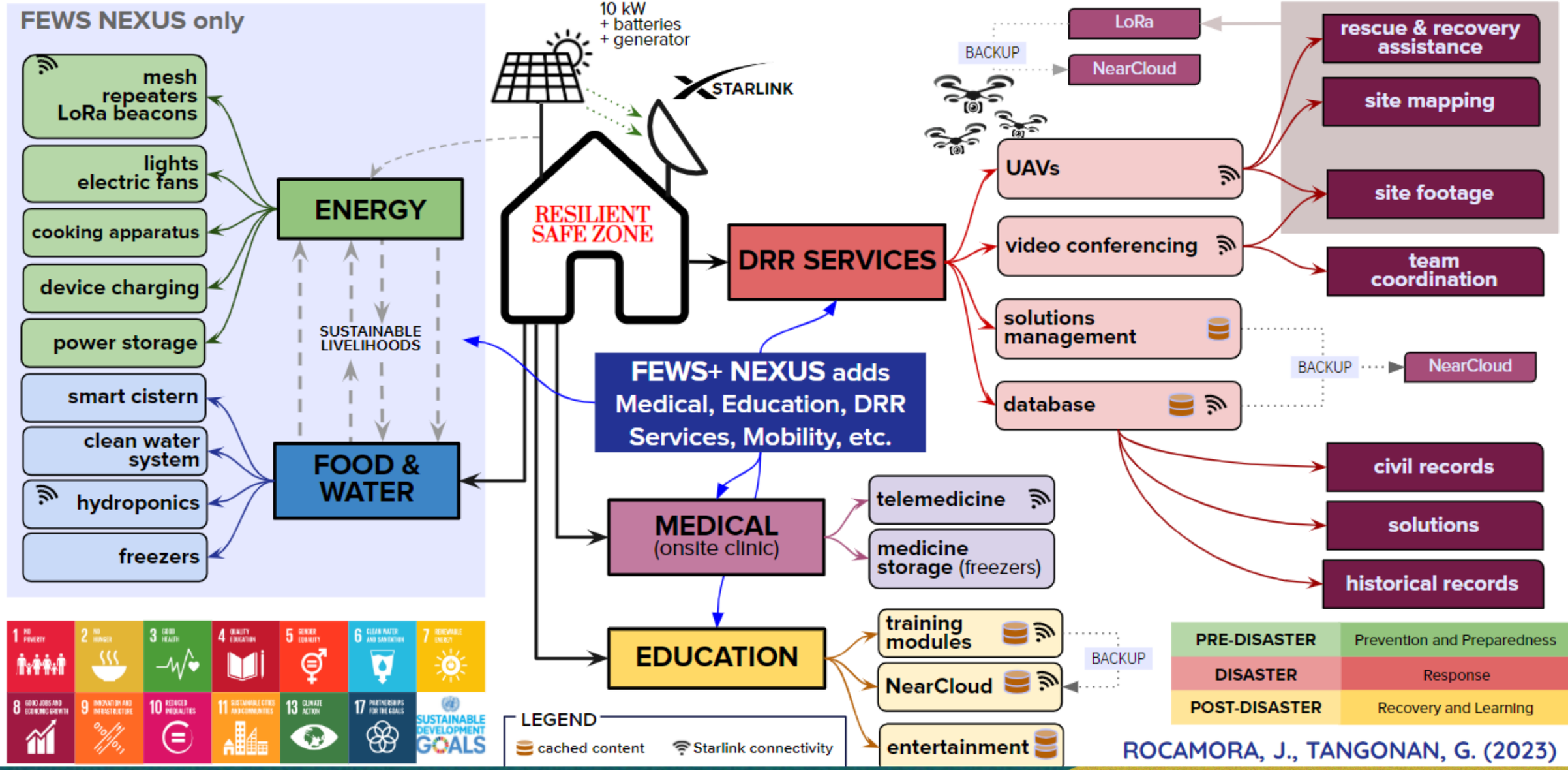
STEER: **S**ustainable **T**echnologies for **E**nvironmental and **E**cological **R**esilience

Ateneo Innovation Center

ATENEO DE MANILA UNIVERSITY
PHILIPPINES

RESILIENCE HUBS: Safe Zones for Urban and Rural Cities

100 Families | Solar Power | Starlink Connectivity | Food | Energy | Water | InfoTech | Medical | Mobility



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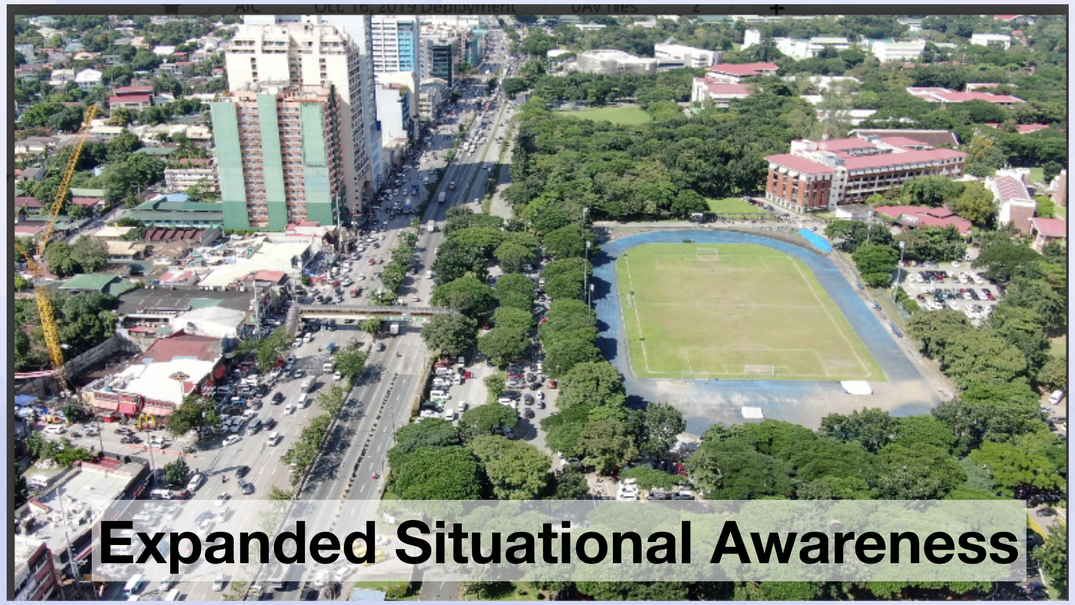
RESILIENCE HUBS FOR ANTICIPATORY ACTION

Amplifying the Role of Science and Technology Innovations through Public-Private-People Partnerships

ASIA-PACIFIC MINISTERIAL CONFERENCE ON DISASTER RISK REDUCTION

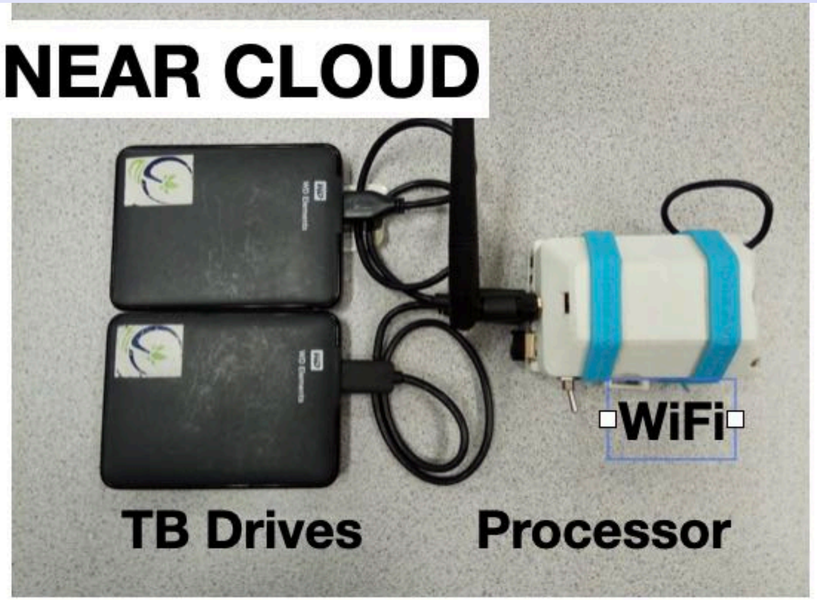
NRC UPGRADE OF DISASTER RESILIENCE HUBS WITH NEAR CLOUD + STARLINK

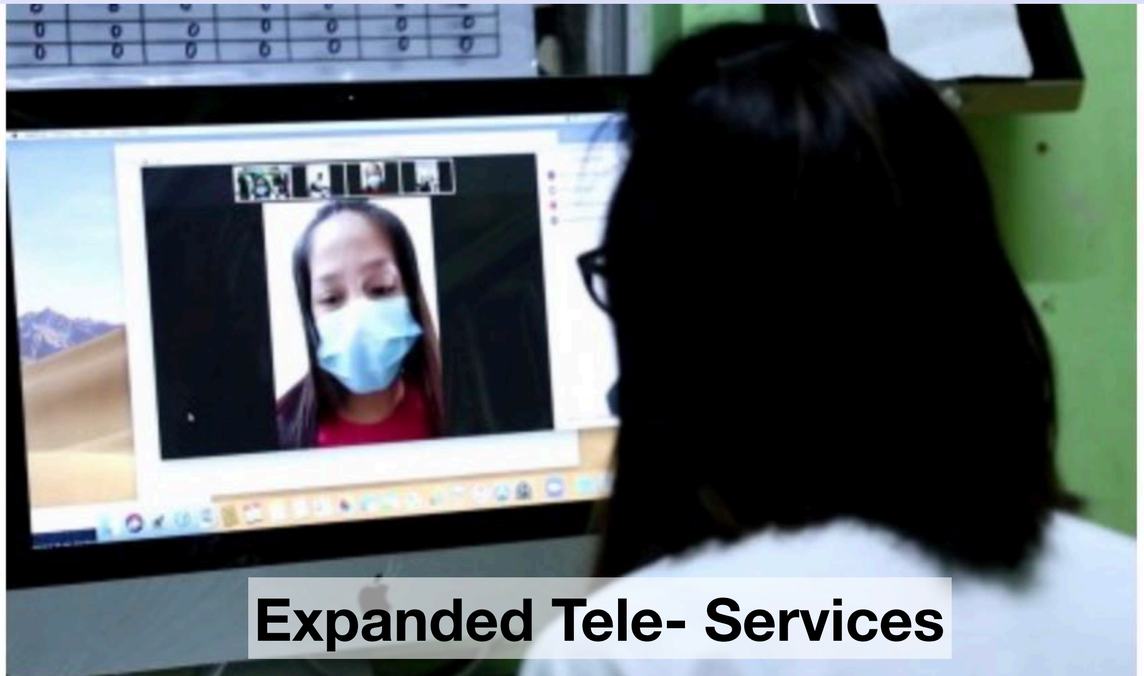


STARLINK

>100 Mbps Down

>20 Mbps Up

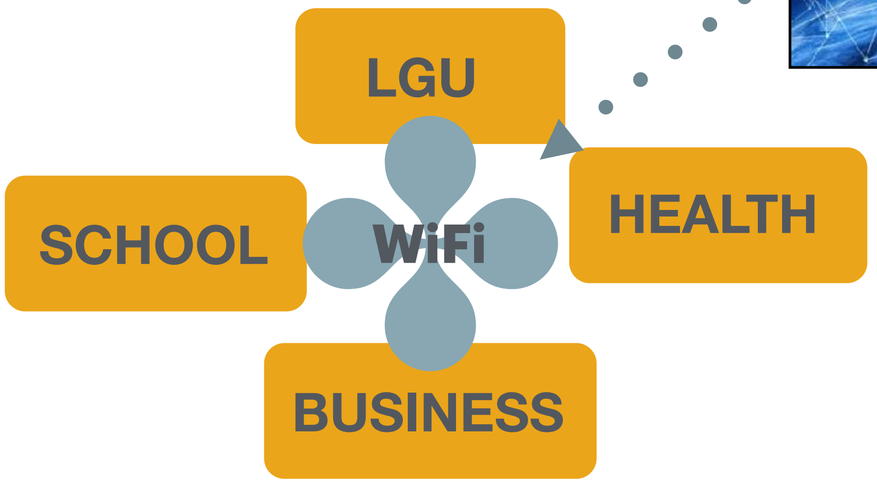




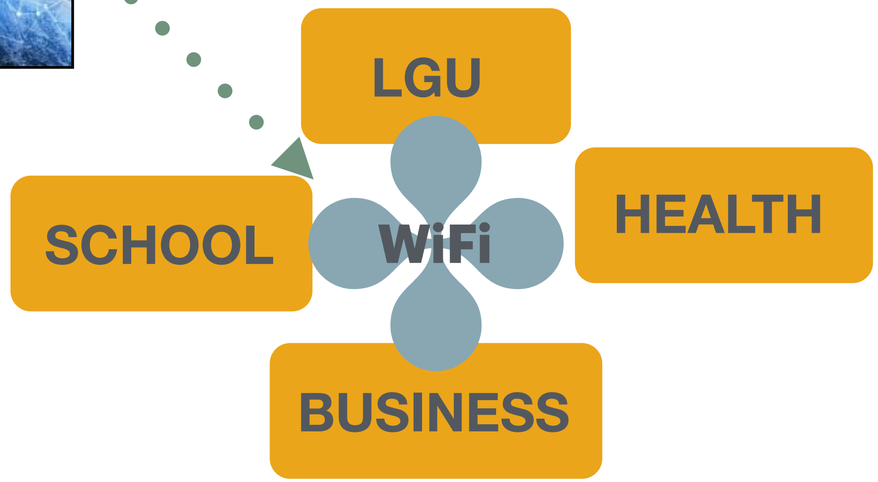
NATIONWIDE NETWORK OF RESILIENCE HUBS WITH LOCAL WIFI CLOUDS

Everyday Operations Upgrade	**Terabyte Cache of Local Content**	**Internet Sharing on WiFi**
Fully Connected 24/7	**Multiple Backups**	**Off-Grid Capable**
Multiple Sectors	**Reduced Use of Bandwidth**	**Situational Awareness**

RESILIENCE HUB



RESILIENCE HUB



NRC'S ADOPT-A-CITY PROGRAM TO BUILD RESILIENCE HUBS

Through AAC, Community Centers can become Resilience Hubs by bringing in Industry and Government resources in a co-innovation with local stakeholders (including local academe)

Multipurpose regional evacuation centers
LGU operations, PhilHealth clinics, senior centers
Upgrade of facilities for extreme weather events
Upgrade to accommodate 100 families long term

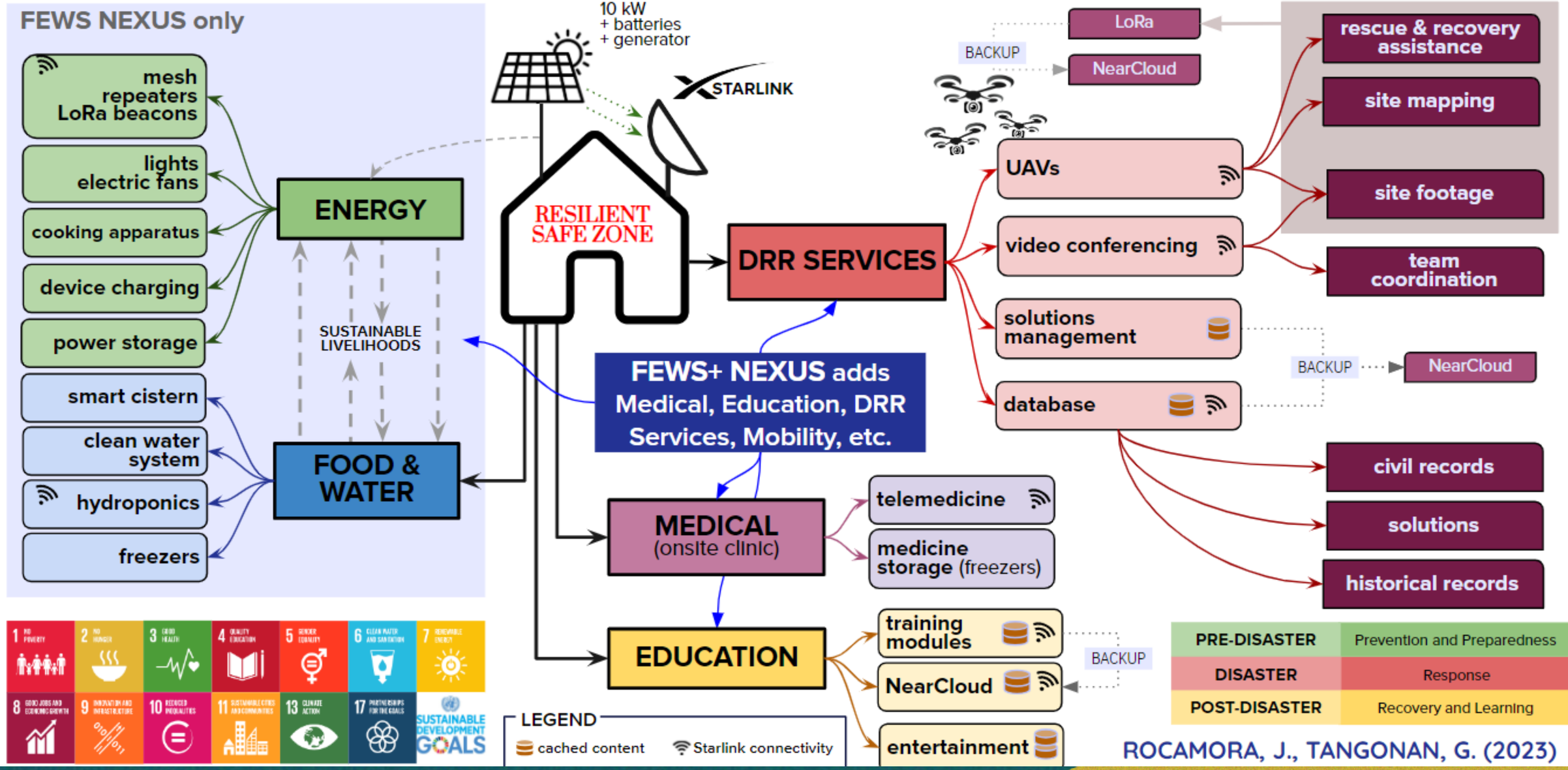
BAGUIO CDRRMO EVACUATION CENTER (Source: Baguio PIO)

BARANGAY SOOC, AREVALO, ILOILO CITY

ORO CENTRAL, CAGAYAN DE ORO

RESILIENCE HUBS: Safe Zones for Urban and Rural Cities

100 Families | Solar Power | Starlink Connectivity | Food | Energy | Water | InfoTech | Medical | Mobility



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Professor Gregory Tangonan

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National Resilience Council

Thank You for Your Kind Attention !

ASIA-PACIFIC MINISTERIAL CONFERENCE ON DISASTER RISK REDUCTION

MANILA PHILIPPINES 14-18 OCTOBER 2024

SURGE TO 2030

Investing in Disaster Resilient Infrastructure in Asia and the Pacific TEST TEST

Moderated by: **Mr. Juan Dela Cruz**
Position, Agency

Mr. Juan Dela Cruz TEST TEST YANICK
Position, Agency

Mr. Juan Dela Cruz
Position, Agency

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Position, Agency

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